



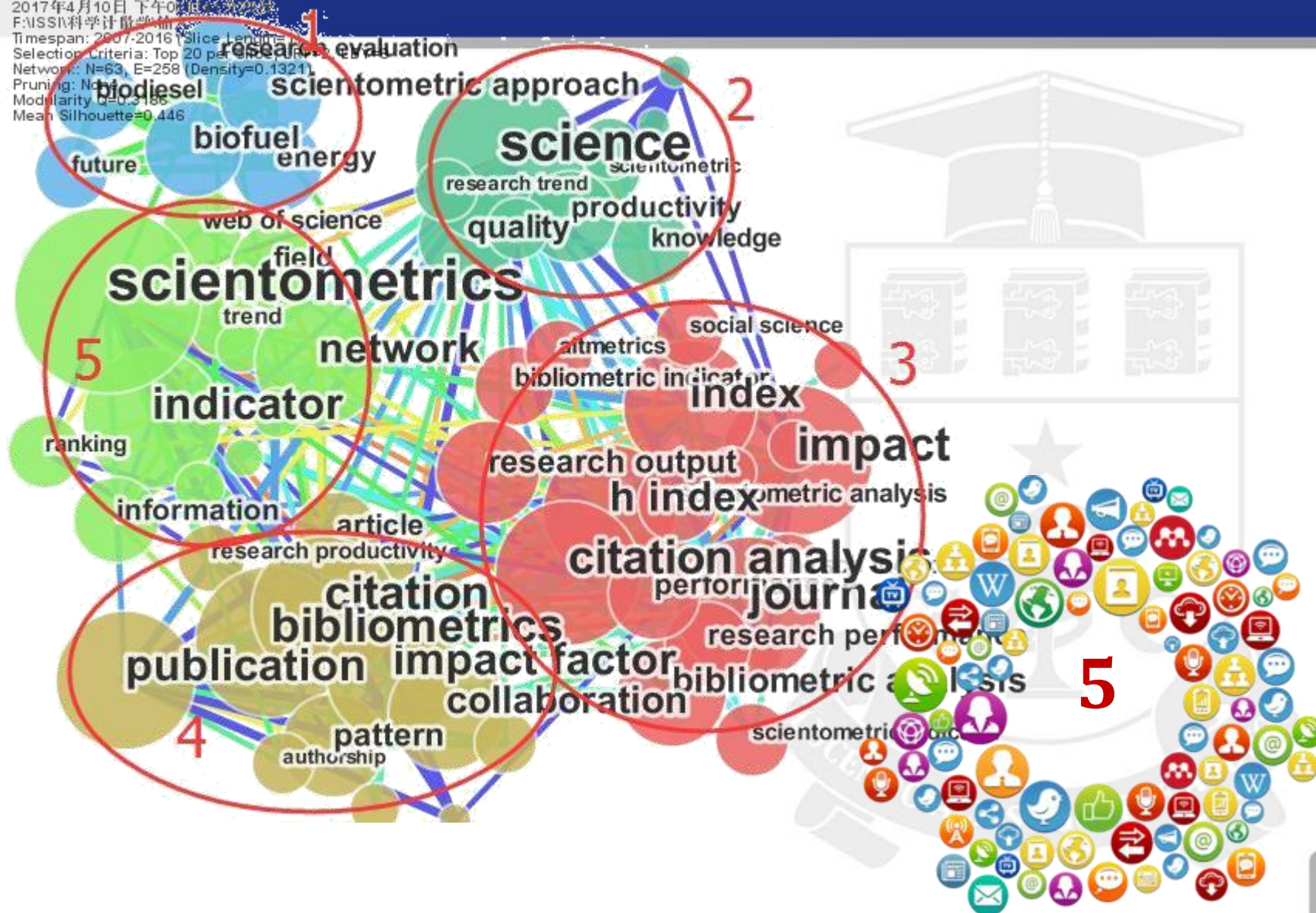
UNIVERSITATEA DE STAT DE MEDICINĂ ȘI FARMACIE
“NICOLAE TESTEMIȚANU” DIN REPUBLICA MOLDOVA

From bibliometrics to altmetrics: conceptual approaches

Olesea Dobrea,
Head of Department
Automation of Library Technologies



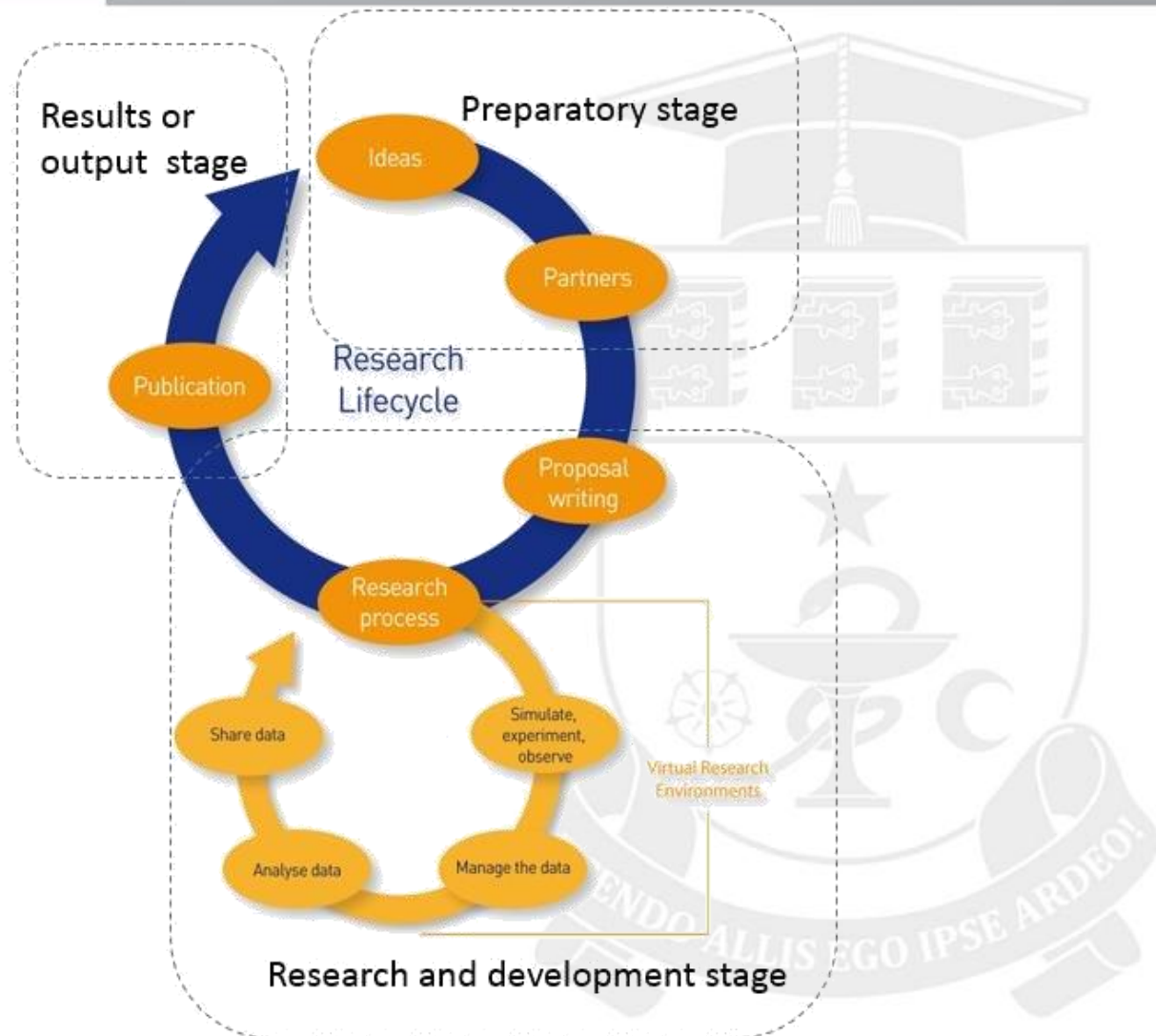
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Pruning: No
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The factors that determined the jump from the traditional paradigm to the one of the digital communication:

- 1) the progress in the field of information technologies and communication;
- 2) development of new models and methods of information;
- 3) the active use of bibliometrics and scientometrics in editorial policy and management of science funding
- 4) the use of informational indicators regarding the international and national rankings of universities;
- 5) the widespread dissemination of electronic information resources, the development of the Internet and the international movement of open access to scientific knowledge.



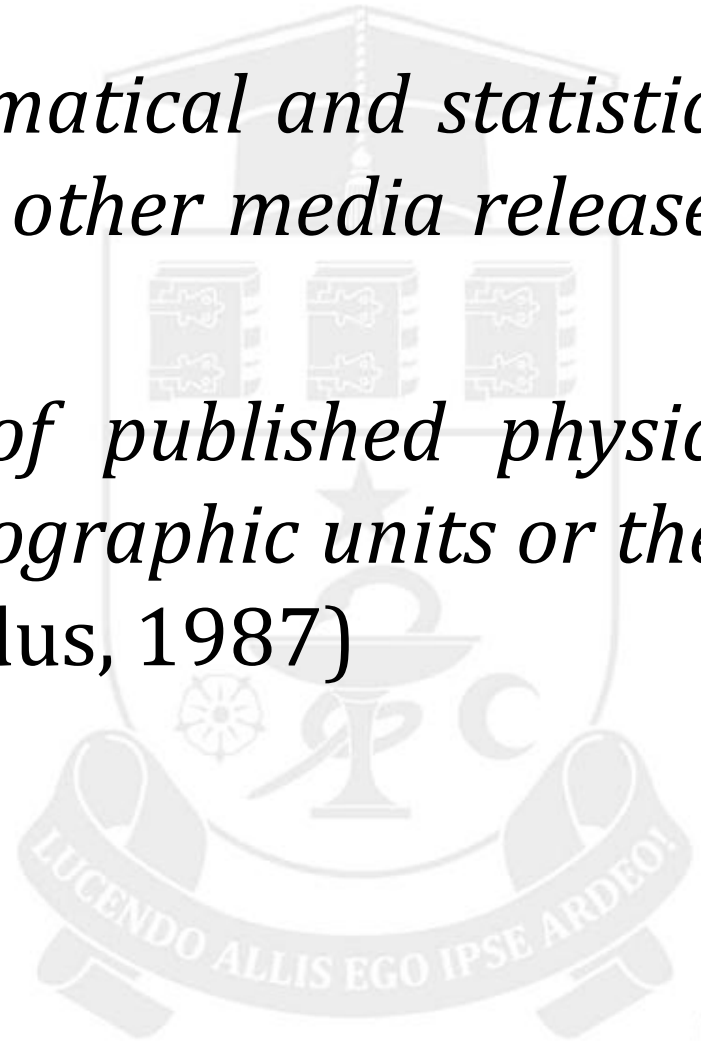


Bibliometrics

- Bibliometrics - „ *system of measures related to a book and a document*” (in the “*Traité de Documentation*” , P.Otlet)
- „*librametry*” similar to the terms „*econometrics*”, „*biometrics*” – “ *measurement of all quantitative data directly related to the activity of libraries*” (in 1948, at the conference AsLib, Indian librarian and scientist, S. R. Ranganathan)



- „ *application of mathematical and statistical methods for books and other media releases*” (Pritchard A., 1969)
- „ *quantitative study of published physical units or published bibliographic units or their surrogates*” (R.N. Broadus, 1987)





Scientometrics

- *"Scientometrics - application of those quantitative methods that deal with the analysis of science seen as a process of information" (Nalimov V., 1969)*
- *„ quantitative study of science and technology" (William Hood & Concepción Wilson)*
- *„ the study of the quantitative aspects of science as a discipline or an economic activity. It is part of the sociology of science and has applications in the science policy. It involves quantitative studies of scientific activities, including, actually, publication, and thus overlaps with bibliometry to some extent." (Tague-Sutcliffe)*



Informetrics

- - *the study of quantitative aspects of information. This includes the production, dissemination, and use of all forms of information, regardless of its form or origin. Informetrics encompasses the following fields:*
- Scientometrics, which studies quantitative aspects of science
- Webometrics, which studies quantitative aspects of the World Wide Web
- Cybermetrics, which is similar to webometrics, but broadens its definition to include electronic resources
- Bibliometrics, which studies quantitative aspects of *recorded* information

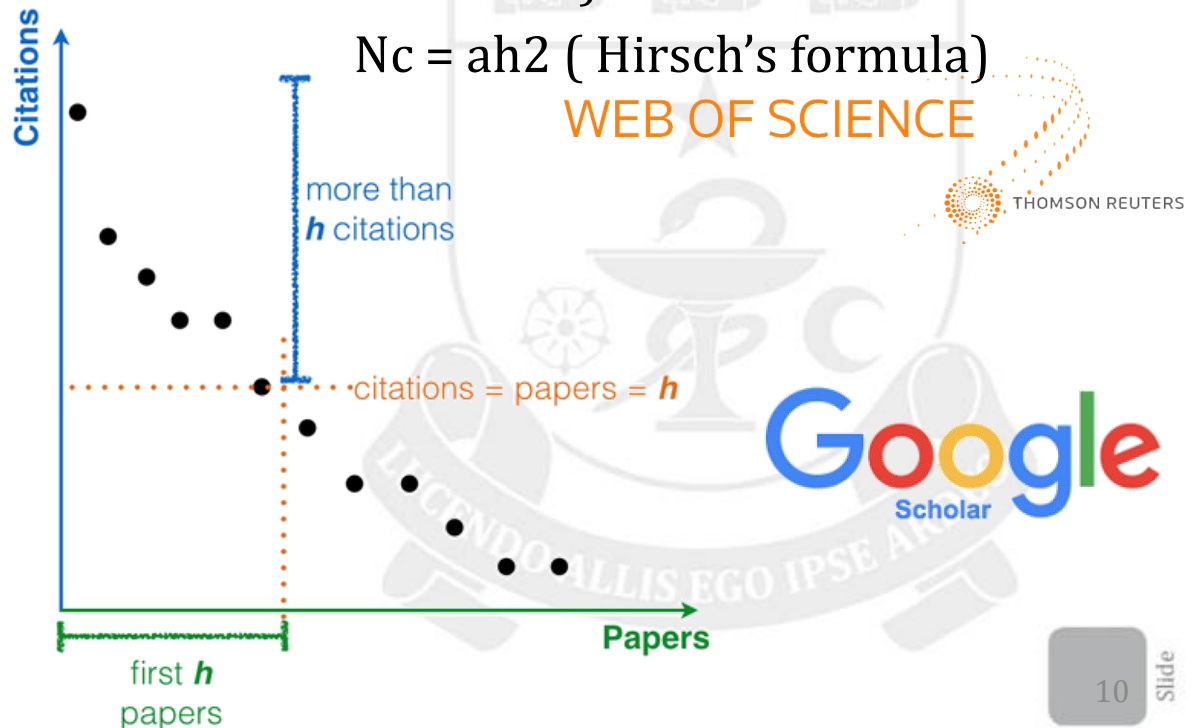
The term informetrics was coined by Nacke in 1979



- Is that if a research article, called the source item, is cited in a future article, then it must have influenced the researchers who produced the future (downstream) article. Being cited by another researcher indicates that the source researcher is having an impact on the science: The research product is being used by others to create even more information. If a source item is cited many times, it must mean that its publication was useful to many people and has high impact. High impact is felt to reflect high value.



Hirsch-index - determined by the number of papers published during the selected year and the number of citations they obtained, an instrument for evaluating the scientific results of researchers and academic institutions and a criterion for quantifying their scientific impact. (Jorge Hirsch, in 2005) (Scopus (SciVerse Scopus,)), Google Scholar or Web of Science de Thomson Reuters)





Scopus

Author details

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Ceban, Emil

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Affiliation(s):

State University of Medicine and Pharmacy "Nicolae Testemițanu" of the Republic of Moldova,
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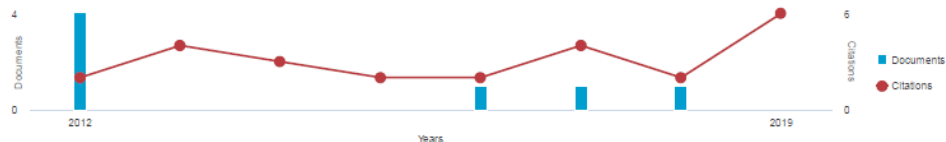
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Document title	Authors	Year	Source	Cited by
Lower urinary tract symptoms and erectile dysfunction in men from the Republic of Moldova	Dumbraveanu, I., Ceban, E., Banov, P.	2018	Journal of medicine and life 11(2), pp. 153-159	0
View abstract ▼				
The efficacy of metaphylaxis in treatment of recurrent urolithiasis	Banov, P., Ceban, E.	2017	Journal of medicine and life 10(3), pp. 188-193	0
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Oxidative stress and antioxidant status in patients with complicated urolithiasis	Ceban, E., Banov, P., Galescu, A., Botnari, V.	2016	Journal of medicine and life 9(3), pp. 259-262	6
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Efficacy of a fixed combination of Centaurii herba, Levistici radix and Rosmarini folium in urinary lithiasis	Ceban, E.	2012	Zeitschrift fur Phytotherapie 33(1), pp. 19-23	4



Document title

Authors

Year Source

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The treatment of the reno-ureteral calculi by extracorporeal shockwave lithotripsy (ESWL).

Ceban, E.

2012 Journal of medicine and life 5(2), pp. 133-138

2

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Pharmacological therapy in patients diagnosed with Peyronie's disease.

Halal, A.A., Geavlete, P., Ceban, E.

2012 Journal of medicine and life 5(2), pp. 192-195

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Impact of obesity on retrograde ureteroscopic approach.

Drăguțescu, M., Muțescu, R., Geavlete, B., (...), Ceban, E., Geavlete, P.

2012 Journal of medicine and life 5(2), pp. 222-225

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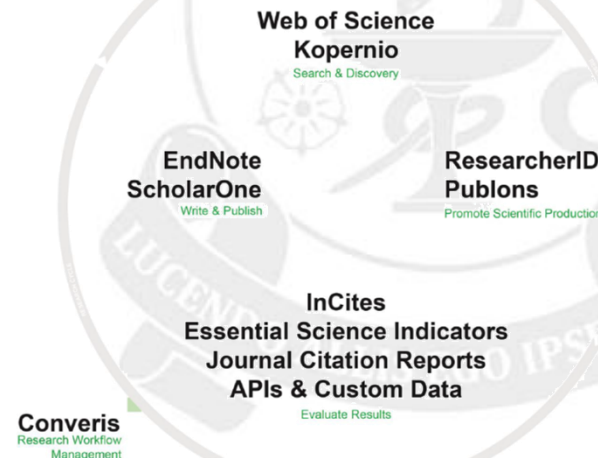
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Web Of Science vs SciVerse Scopus

- **“Cited Reference Search”** (CRS), able to locate and find previously published citations and articles.
- **“Related Records”**, detects authors who cite the same records, while the similar function in SciVerse Scopus offers the possibility of discovering documents that are connected either by the author or by keywords, in a particular record.
- **„Citation tracking”** in Sciverse Scopus, and **„Create Citation Report”** of Web of Science can both determine the influence and scientific value of a recording for a given period of time.





Impact Factor

- frequency measuring instrument with which the article in a magazine was cited in a particular year or period. IF is calculated annually and represents the ratio between the number of citations and the total number of articles published by the respective magazine in at least two previous years

Impact factor for the year 2018

A = number of citations in 2018 of articles published in 2016-2017 in a journal

B= the number of articles published in 2016-2017 in a journal

Impact factor for 2018 = A/B


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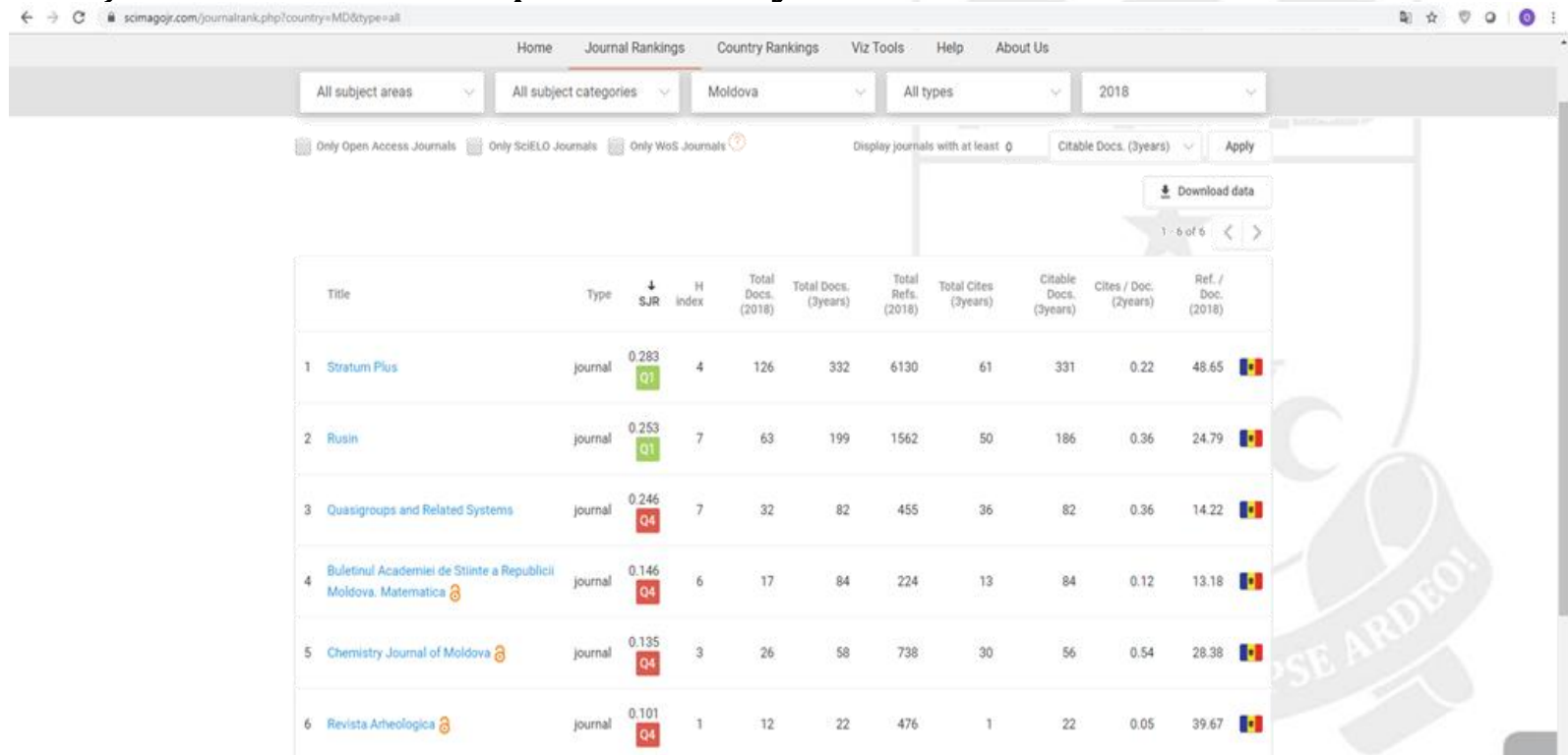
Key Indicators

Year	Total Cites Graph	Journal Impact Factor Graph	Impact Factor Without Journal Self Cites Graph	5 Year Impact Factor Graph	Immediacy Index Graph	Citable Items Graph	Cited Half-Life Graph	Citing Half-Life Graph	Eigenfacto Score Graph	Article Influence Score Graph	% Articles in Citable Items Graph	Normalized Eigenfacto Graph	Average JIF Percentile Graph
2018	745,...	43.070	42.477	45.819	9.435	904	10.1	6.1	1.28...	22.404	96.57	152,...	99.275
2017	710,...	41.577	41.015	44.959	9.700	836	10.8	6.0	1.35...	22.537	95.93	158,...	99.219
2016	671,...	40.137	39.533	43.769	9.129	879	>10.0	6.0	1.43...	22.987	95.90	164,...	99.219
2015	627,...	38.138	37.546	41.458	9.518	897	>10.0	5.8	1.44...	22.215	94.87	164,...	99.206
2014	617,...	41.456	40.821	41.296	9.585	862	>10.0	5.6	1.49...	21.960	96.06	167,...	99.123
2013	590,...	42.351	41.650	40.783	8.457	857	9.8	5.4	1.60...	22.184	96.73	176,...	99.091
2012	554,...	38.597	37.956	38.159	9.243	869	9.6	5.2	1.56...	20.801	96.09	Not ...	99.107
2011	526,...	36.280	35.707	36.235	9.690	841	9.4	5.1	1.65...	20.373	95.60	Not ...	99.107
2010	511,...	36.104	35.527	35.248	8.792	862	9.1	5.2	1.73...	19.306	95.71	Not ...	99.153
2009	483,...	34.480	33.855	32.906	8.209	866	8.9	5.1	1.74...	18.062	92.38	Not ...	99.000
2008	443,...	31.434	30.864	31.210	8.194	899	8.5	4.9	1.76...	17.279	94.66	Not ...	98.810
2007	417,...	28.751	28.263	30.616	7.385	841	8.0	4.8	1.83...	16.996	93.70	Not ...	99.000
2006	390,...	26.681	26.060	Not ...	6.789	962	7.8	4.6	Not ...	Not ...	94.07	Not ...	97.000
2005	372,...	29.273	28.645	Not ...	5.825	1,065	7.5	4.7	Not ...	Not ...	94.74	Not ...	96.875



SCImago Journal Rank (SJR)

- measure of scientific influence of academic journals. A SJR journal is a numeric value indicating the average number of citations received during a selected year for each document published in that journal over the past three years.



The screenshot shows the SCImago Journal Rank (SJR) website interface. The URL is scimagojr.com/journalrank.php?country=MD&type=all. The navigation bar includes Home, Journal Rankings, Country Rankings, Viz Tools, Help, and About Us. The filters are set to 'All subject areas', 'All subject categories', 'Moldova', 'All types', and '2018'. The 'Only Open Access Journals' checkbox is selected. The 'Display journals with at least 0 Citable Docs. (3years)' is set. A 'Download data' button is visible. The table below lists the top 6 journals in Moldova for 2018.

Title	Type	SJR	H Index	Total Docs. (2018)	Total Docs. (3years)	Total Refs. (2018)	Total Cites (3years)	Citable Docs. (3years)	Cites / Doc. (2years)	Ref. / Doc. (2018)
1 Stratum Plus	Journal	0.283 Q1	4	126	332	6130	61	331	0.22	48.65
2 Rusin	Journal	0.253 Q1	7	63	199	1562	50	186	0.36	24.79
3 Quasigroups and Related Systems	Journal	0.246 Q4	7	32	82	455	36	82	0.36	14.22
4 Buletinul Academiei de Stiinta a Republicii Moldova. Matematica	Journal	0.146 Q4	6	17	84	224	13	84	0.12	13.18
5 Chemistry Journal of Moldova	Journal	0.135 Q4	3	26	58	738	30	56	0.54	28.38
6 Revista Arheologica	Journal	0.101 Q4	1	12	22	476	1	22	0.05	39.67



lsearch.php?q=19900192610&tip=sid&clean=0

Buletinul Academiei de Stiinte a Republicii Moldova. Matematica 6

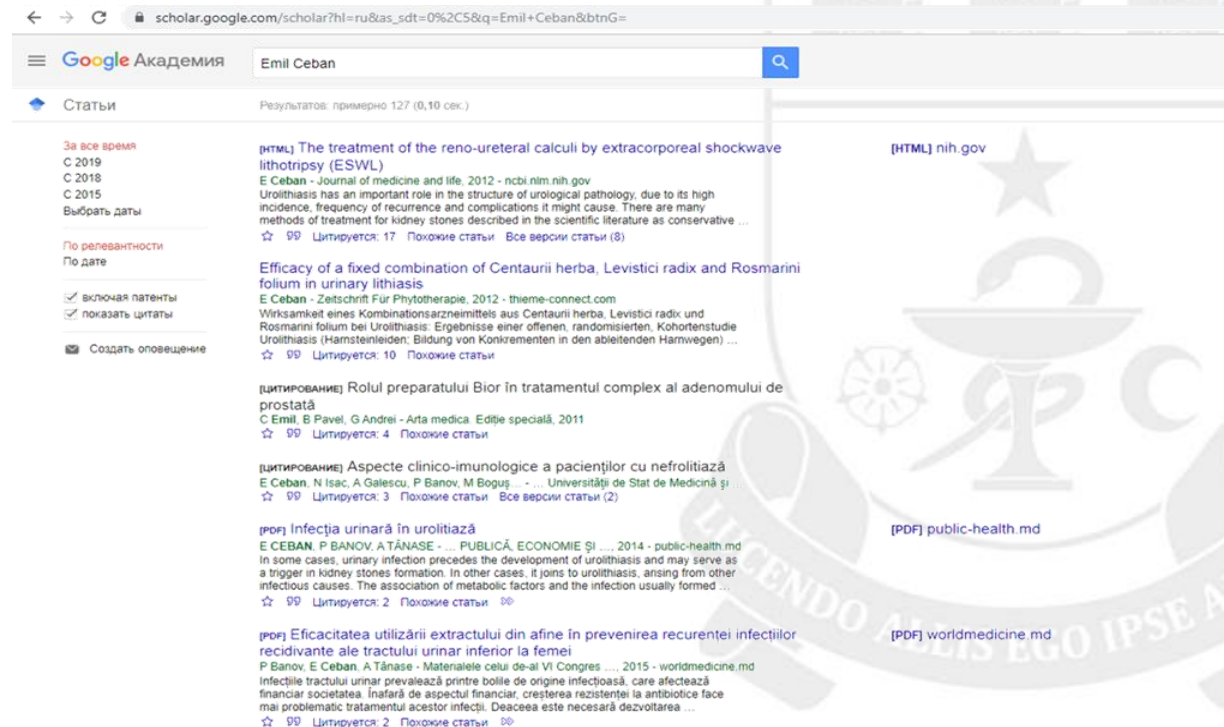
Country	Moldova - IIIR SIR Ranking of Moldova	6
Subject Area and Category	Mathematics Mathematics (miscellaneous)	
Publisher	Publishing and Printing State Enterprise Stiinta	H Index
Publication type	Journals	
ISSN	10247696	
Coverage	2011-ongoing	
Join the conversation about this journal		





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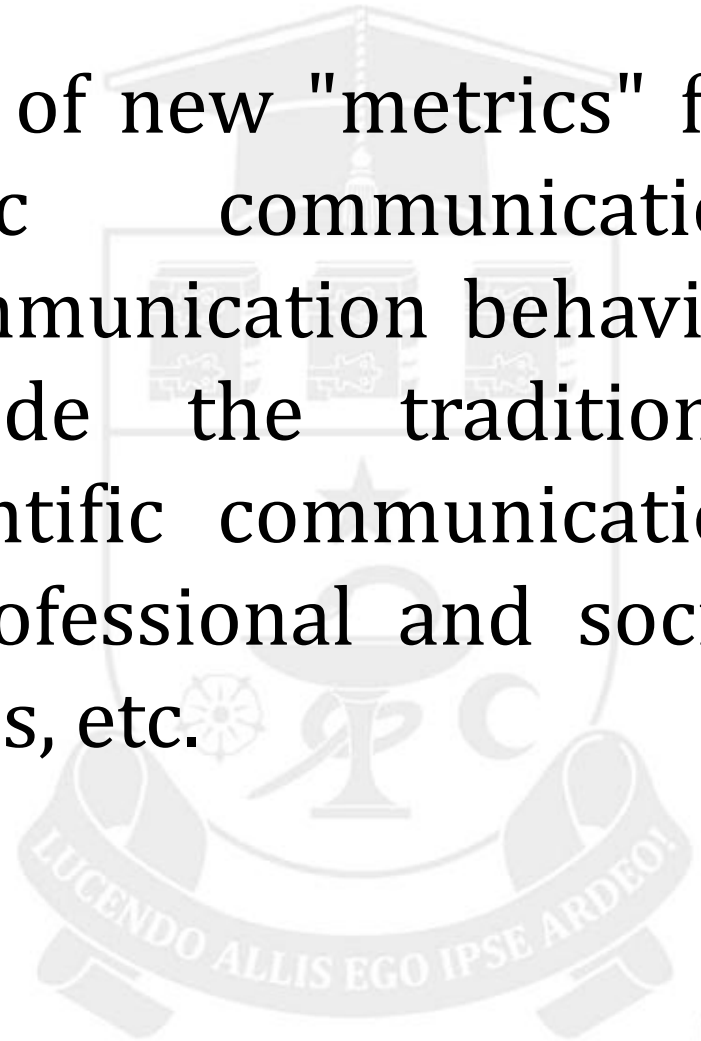
- free search engine, which offers full text search for scientific publications in all formats and disciplines





Altmetrics

- creation and research of new "metrics" for analyzing scientific communication (scientific impact, communication behavior of scientists), outside the traditional channels of the scientific communication system, namely in professional and social networks, blogs, forums, etc.





Reasons for the need to develop altmetric indicators

- deficiencies in the expert evaluation process (subjectivity, need for a certain amount of time for examination (sometimes quite long);
- disadvantages of traditional bibliometric and scientometric indicators (firstly, ignored context, objectives, purpose, reasons for citation, etc.);
- shortcomings of the impact factor of the journal (cannot and should not be used for the purpose of individual evaluation of an article).



Advantages of using altmetrics

- a more detailed understanding of the impact, demonstrating what "scientific products" are cited, discussed, saved and recommended;
- obtaining operational data that proves the impact in days, instead of years;
- visualizing the impact of such "scientific products" such as datasets, software, blog posts, video blogs, etc .;
- reflecting the signs of impact on a wider audience, including scientists, interns, teachers, and the general public;
- is often based on open data;
- speed; the impact can be viewed in real time (daily, weekly, annually) by the researcher.



Disadvantages

- lack of control (diversity);
- susceptibility to manipulation;
- the need for standarts.





Databases that use altmetrics

- BioMed Central, PLoS, Nature Publishing Group, Elsevier



ELSEVIER



Altmetric

nature publishing group





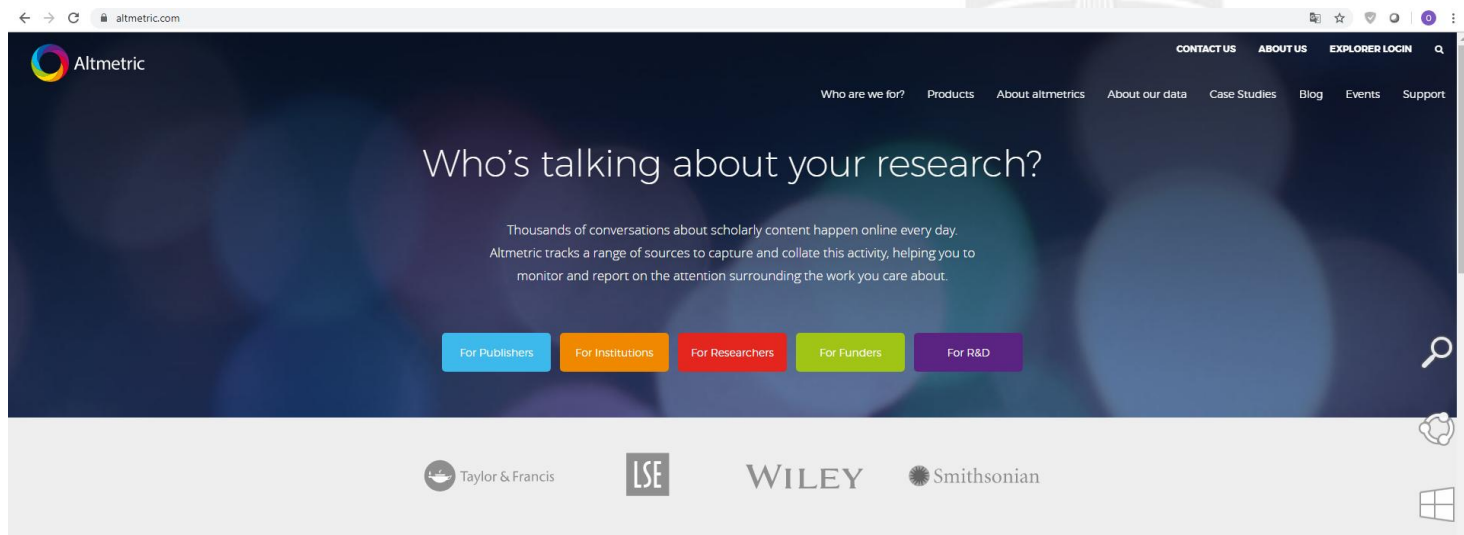
Table 1. Principal measurements proposed by altmetrics, classified according to type of platform, indicator and social network or platform

Type of platform	Type of indicator	Social network or platform	Examples of indicators
DIGITAL LIBRARIES AND REFERENCE MANAGEMENT SYSTEMS	Social bookmarking and digital libraries	General • Delicious	<ul style="list-style-type: none"> • N° of times marked as favourite • N° of groups • N° of groups added to
		Academic • Citeulike • Connotea • Mendeley	
SOCIAL NETWORKS AND MEDIA	Mentions In social networks	General • Facebook • Google+ • Twitter	<ul style="list-style-type: none"> • Number of likes • Number of clicks • Number of comments • Number of times shared • Number of mentions in tweets • Number of retweets • Retweets of leading users • Etc.
		Academic • Academia.edu • Research Gate	
	Mentions in blogs	General • Blogger • Wordpress	<ul style="list-style-type: none"> • Number of blog citations • Comments on the entry in blogs • Systems of rating the entry
		Academic • Nature Blogs • Postgenomic blog • Research Blogging	
	Mentions in encyclopedias	• Wikipedia • Scholarpedia	• Citations in the encyclopedia's entry
	Mentions in news promotion systems	General • Reddit • Menéame	<ul style="list-style-type: none"> • Number of times on the title page • Number of Clicks (moves) • Number of comments on the news • Punctuation of experts
		Academic • Faculty of 1000	

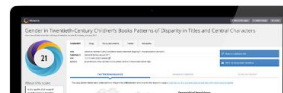


Programs (altmetrics instruments) used in the research evaluation process

- Altmetric (www.altmetric.com/)



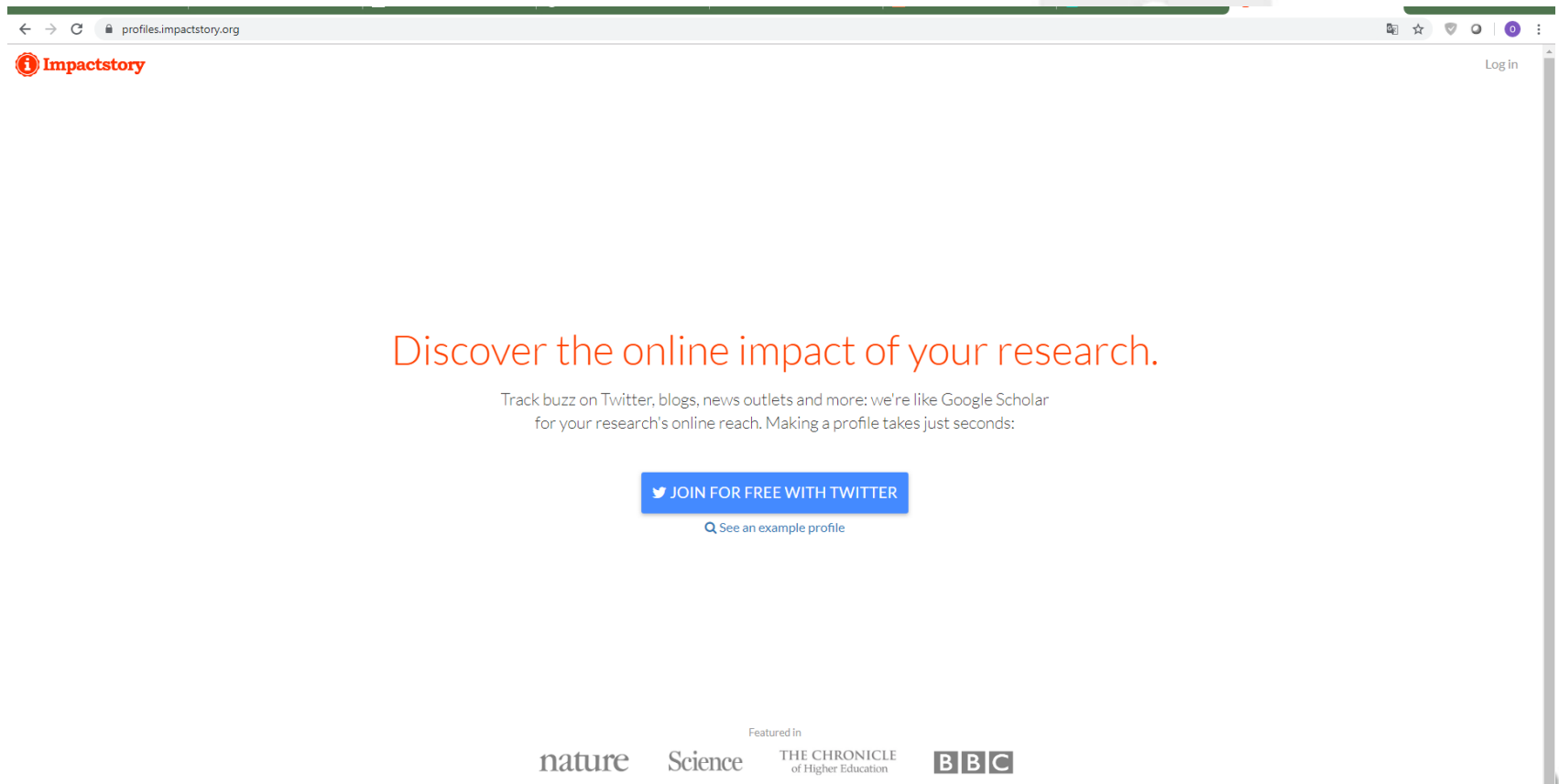
What does Altmetric do?



A single research output may live online in multiple websites and can be talked about across dozens of different platforms. At Altmetric, we work behind the scenes, collecting and collating



- ImpatStory (www.impactstory.org/)



The screenshot shows the ImpactStory website homepage. At the top, there's a navigation bar with the ImpactStory logo on the left and a 'Log in' link on the right. The main content area features the headline 'Discover the online impact of your research.' in orange, followed by a sub-headline in grey: 'Track buzz on Twitter, blogs, news outlets and more: we're like Google Scholar for your research's online reach. Making a profile takes just seconds:'. Below this is a prominent blue button with a Twitter bird icon and the text 'JOIN FOR FREE WITH TWITTER'. Underneath the button is a link that says 'See an example profile' with a magnifying glass icon. At the bottom, there's a section titled 'Featured in' with logos for 'nature', 'Science', 'THE CHRONICLE of Higher Education', and 'BBC'.

profiles.impactstory.org

Impactstory Log in

Discover the online impact of your research.

Track buzz on Twitter, blogs, news outlets and more: we're like Google Scholar for your research's online reach. Making a profile takes just seconds:

JOIN FOR FREE WITH TWITTER

See an example profile

Featured in

nature Science THE CHRONICLE of Higher Education BBC



- Plum Analytics <https://plumanalytics.com/>)

The screenshot shows the Plum Analytics website interface. At the top, there is a navigation bar with the Plum Analytics logo, links for 'Learn', 'Integrate', 'Interact', and 'About', and a 'Stay in touch' button. The main content area features a large blue background with a central white box displaying a dashboard of research metrics. The dashboard is divided into several sections: 'Usage' (Abstract Views: 44, PDF Views: 1253, HTML Views: 10348), 'Social Media' (Likes: 22, Shares: 15, +1: 4), 'Captures' (Exports-saves: 7, Readers: 44), 'Citations' (Citation Indexes: 29, Clinical Citations: 3, Policy Citations: 2), 'Mentions' (News Mentions: 56, Blog Mentions: 25, Wikipedia: 3), and 'Export' (Exports-saves: 7, Readers: 44). Below the dashboard, there is a section titled 'Tell the Story' with the text: 'Plum Analytics uses research metrics to help answer the questions and tell the stories about research.' At the bottom, there are two columns of text. The left column discusses how research metrics help answer questions and tell stories about research. The right column features a quote from Tim Delyiannides, Director of Scholarly Communication and Publishing at the University Library System, University of Pittsburgh, stating: 'PlumX gives us a window on the full range of impact that our research has. No other system tracks as many different metrics as PlumX.'

Now, these questions are getting easier to answer. Research metrics that immediately measure awareness and interest give us new ways to uncover and tell the stories of research.

Technologies that encourage communication, sharing and other interaction with research output—leave “footprints” to show the way back to who is interested in the research and why. Technologies that make processing big data possible—make it possible to categorize and analyze all of the metric data from the many interactions.

What customers say...

“PlumX gives us a window on the full range of impact that our research has. No other system tracks as many different metrics as PlumX.”

*Tim Delyiannides,
Director, Scholarly Communication and Publishing
University Library System, University of Pittsburgh*



- altmetrics gives "visibility", dynamism and social character of the research evaluation process;
- the use of altmetrics is associated with certain restrictions that must be taken into account (problems of continuity, reproducibility, normalization of results, etc.).



THANK YOU for your ATTENTION!

Olesea Dobrea,
Head of Department Automation of Library Technologies,
Scientific Medical Library , Nicolae Testemitanu SUMPh
olesea.dobrea@usmf.md
atb.library@usmf.md

